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REC'D 25 JUL 2005

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference SC/jk 030229WO	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/IB2003/001829	International filing date (day/month/year) 12.05.2003	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC G01C 21/00		
Applicant NOKIA CORPORATION et al		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
- a. ☒ (sent to the applicant and to the International Bureau) a total of 10 sheets, as follows:
- ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
- ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
- b. ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 17.11.2004	Date of completion of this report 19.07.2005
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2003/001829

Box No. I Basis of the report

1. With regard to the language, this report is based on:

- ☐ the international application in the language in which it was filed
- ☐ a translation of the international application into _____, which is the language of a translation furnished for the purposes of:
- ☐ international search (Rules 12.3(a) and 23.1(b))
- ☐ publication of the international application (Rule 12.4(a))
- ☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

- ☐ the international application as originally filed/furnished
- ☒ the description:
- pages 1-20 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☒ the claims:
- pages _____ as originally filed/furnished
- pages* _____ as amended (together with any statement) under Article 19
- pages* 1-10 received by this Authority on 08.06.2005
- pages* _____ received by this Authority on _____
- ☒ the drawings:
- pages 1-3 as originally filed/furnished
- pages* _____ received by this Authority on _____
- pages* _____ received by this Authority on _____
- ☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

- ☐ the description, pages _____
- ☐ the claims, Nos. _____
- ☐ the drawings, sheets/figs _____
- ☐ the sequence listing (*specify*): _____
- ☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/IB2003/001829

Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-34</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-34</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-34</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

A US 2003080901 A1 (T.E.Piotrowski), 1 May 2003
 B US 2003014186 A1 (T.A.Cofino et al), 16 January 2003
 C EP 0942345 A2 (Webb Int Co Jervis B), 15 September 1999
 D EP 0763712 A (Union Switch & Signal Inc), 19 March 1997

In a view of new claims amended at 08-06-2005 documents A and B are reconsidered to represent the state of the art, together with documents C and D.

Present invention relates to a method for navigating within navigation area, involving navigating desired route by passing navigation tags of sequence of navigation tags, such that passing of navigation tag is acknowledged.

Document A discloses a radio frequency identification navigation system for a building complex. The system has a radio frequency tag with unique binary code as a predetermined signature, and a receiver having RF tag reader capable of reading the predetermined signature. The unique code is associated with a location of the RF tag. Navigation information related to all tag locations is stored a memory. The navigation information may also include a digital map of the building complex or region and the locations of the tags would be identified in the digital map. Based upon the current position, instructions can be provided and transferred to a tag reader to help the user to reach a specific location. (See page 2, part 0030-0032; claim 1; fig.2).

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

Document B discloses a position detecting device for providing navigational aids for users, comprising RFID tags and an RFID transceiver, which stimulates and reads data from the RFID tags. The transceiver may also write data to the RFID tags. The device has memories storing position points of the tags that define respective location within physical areas. A path process defines one or more paths connecting one or more of the position points in response to a user query and accesses the information to determine the progress of a user through the physical area. A user interface communicates the progress through the physical area to the user. (See page 2, part 0026-0035; claims 1-4).

However, none of the cited documents discloses a method and a system for navigating within a navigation area wherein a plurality of navigation tags has been mounted at predetermined positions within the navigation area as described in claims 1,3,19,20,22 and 33. In view of the cited documents such a method and a system cannot be considered obvious to a person skilled in the art.

Therefore the invention claimed in claims 1 - 34 is novel and considered to involve an inventive step.

What is claimed in claims 1 - 34 is considered to be industrially applicable.

SC/cw 030229WO
June 6, 2005

CLAIMS

1. Method for navigating within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:
 - determining (11) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
 - navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is acknowledged (12, 13);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further stores topographic information (19) on the navigation area (2), wherein said stored positions (18) and topographic information (19) are transferred to (9, 10, 20, 21) and stored in (7, 8) a mobile navigation unit (6), and wherein said sequence of navigation tags (1) is determined (11) by said mobile navigation unit (6) based on said stored positions (7, 8) and said topographic information (8).

2. Method according to claim 1, characterised in that said transfer of the stored positions (18) and topographic information (19) is performed by means of a wired link (9, 10, 20, 21) between host unit (17)

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and mobile navigation unit (6) or by means of a wireless link (9, 10, 20, 21).

3. Method for navigating within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:

- determining (22) a sequence of navigation tags (1), which are associated with a desired route within the navigation area (2), based on the positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is acknowledged (12);

wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further stores topographic information (19) on the navigation area (2), wherein said sequence of navigation tags (1) is determined (22) by said host unit (17) based on said stored positions (18) and said topographic information (19), and wherein said sequence of navigation tags (1) is transferred (24, 25) to a mobile navigation unit (6) from the host unit (17).

4. Method according to claim 3, characterised in that said sequence of navigation tags (1) is transferred (24, 25) to said mobile navigation unit (6) from said host unit (17) at once, or in parts, whereby transfer of each part of said sequence of navigation tags (1) is initiated by said acknowledgement (12, 13) of the passing of a navigation tag (1).

5. Method according to claim 4, characterised in that said transfer of the sequence of navigation tags is performed by means of a wired link (24, 25) between host unit (17) and mobile navigation unit (6) or by means of a wireless link (24, 25).
6. Method according to any of the claims 1-5, characterised in that said mobile navigation unit (6) is capable of indicating (16) information on the navigation tag (1) that should be passed next.
7. Method according to claim 6, characterised in that said information on the navigation tag that should be passed next comprises the direction and/or distance to the next navigation tag (1), and/or an identifier of the next navigation tag (1).
8. Method according to claim 7, characterised in that said identifier is a colour and/or a number and/or a symbol.
9. Method according to any of the claims 6-8, characterised in that said information on the navigation tag that should be passed next is indicated optically (16) and/or acoustically and/or haptically.
10. Method according to any of the claims 6-9, characterised in that said acknowledgement of the passing of a navigation tag is performed automatically (13) or manually (12) and updates said indication (16) of the information on the navigation tag (1) that should be passed next.

11. Method according to claim 10, characterised in that said automatic acknowledgement is based on a wireless link between mobile navigation unit (6) and navigation tag (1), such as a radio (15) or optic link.
12. Method according to claim 10, characterised in that said manual acknowledgement is based on a wired connection between mobile navigation unit and navigation tag, or by interaction (12) between the user of the mobile navigation unit and the mobile navigation unit (6).
13. Method according to any of the claims 1-12, characterised in that the navigation tag (1) itself is capable of storing information and that said information is transferred to said mobile navigation unit when the navigation tag is passed.
14. Method according to claim 13, characterised in that such information comprises the position of the navigation tag (1) and/or information on the location within the navigation area (2) where the navigation tag (1) is mounted.
15. Method according to any of the claims 1-14, characterised in that the position of the navigation tags (1) are determined by means of a terrestrial or satellite-based positioning system (3) such as the Global Positioning System (GPS) and/or by maps and/or plans of the navigation area (4).

16. Method according to any of the claims 1-15, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile device such as a mobile phone, a personal digital assistant or a GPS receiver.
17. Method according to any of the claims 2-16 as long as they refer back to claim 2, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said stored positions (18) and topographic information (19) is transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.
18. Method according to any of the claims 5-16 as long as they refer back to claim 5, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said sequence of navigation tags is transferred to the mobile navigation unit via the air interface of the mobile radio system.
19. Method for navigation within a navigation area (2), wherein a plurality of navigation tags (1) has been mounted at predetermined positions within the navigation area (2), said method comprising the steps of:
- determining (11, 22) a sequence of navigation tags (1), which are associated with a desired route within

- the navigation area (2), based on the positions (7, 18) of the navigation tags (1) and on topographic information (8, 19) on the navigation area; and
- navigating said route by passing navigation tags (1) of said sequence of navigation tags, whereby passing of a navigation tag (1) is manually acknowledged (12).
20. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:
- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
 - means for acknowledging (12, 13) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1);
- wherein said positions (18) are stored in a host unit (17), wherein said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), wherein said host unit (17) and a mobile navigation unit (6) comprise means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) from the host unit (17) to the mobile navigation unit (6), wherein said mobile navigation unit (6) further comprises means (7, 8) for storing said positions (18) and topographic information (19), and wherein said mobile

navigation unit (6) further comprises means (11) for determining the sequence of navigation tags (1) based on said stored positions (7) and said stored topographic information (8).

21. System according to claim 20, characterised in said means (9, 10, 20, 21) for transferring said stored positions (18) and topographic information (19) are capable of establishing a wired link between host unit (17) and mobile navigation unit (6) or a wireless link.
22. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:
- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
 - means for acknowledging (12, 13) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1);

wherein said positions are stored in a storage unit (18) that is comprised in a host unit (17), wherein said host unit (17) further comprises a storage unit with topographic information (19) on the navigation area (2), wherein said host unit (17) further comprises means (22) for determining the sequence of navigation tags (1) based on the contents of both

storage units (18, 19), and wherein said host unit (17) and said mobile navigation unit (6) comprise means (24, 25) for transferring said sequence of navigation tags (1) from the host unit (17) to the mobile navigation unit (6).

23. System according to claim 22, characterised in that said means (24, 25) for transferring said sequence of navigation tags (1) are capable of establishing a wired link between host unit (17) and mobile navigation unit (6) or a wireless link.
24. System according to any of the claims 20-23, characterised in that said mobile navigation unit (6) comprises means (16) for indicating information on the navigation tag (1) that should be passed next.
25. System according to claim 24, characterised in that said means for indicating information on the navigation tag that should be passed next comprises optic (16) and/or acoustic and/or haptic means.
26. System according to any of the claims 24-25, characterised in that means are provided for automatic (13) or manual acknowledgement (12) of the passing of a navigation tag (1), and that means are provided to update said indication (16) of the information on the navigation tag (1) that should be passed next.
27. System according to claim 26, characterised in that said automatic acknowledgement is based on a wireless link between mobile navigation unit (6) and

navigation tag (1), such as a radio (15) or optic link.

28. System according to claim 26, characterised in that said manual acknowledgement is based on a wired connection between mobile navigation unit (6) and navigation tag (1), or on means (12) enabling an interaction between the user of the mobile navigation unit (6) and the mobile navigation unit (6).
29. System according to any of the claims 20-28, characterised in that the navigation tag (1) itself comprises means for storing information, and that both navigation tag (1) and mobile navigation unit (6) comprise means for transferring said information from the navigation tag (1) to the mobile navigation unit (6) when the navigation tag (1) is passed.
30. System according to any of the claims 20-29, characterised in that the mobile navigation unit (6) is integrated into a mobile device such as a mobile phone, a personal digital assistant or a GPS receiver.
31. System according to any of the claims 21-30 as long as they refer back to claim 21, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said stored positions (18) and topographic information (19) are transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.

32. System according to any of the claims 23-30 as long as they refer back to claim 23, characterised in that the mobile navigation unit (6) is integrated into or compatible to a mobile phone associated with a mobile radio system, that the core network of the mobile radio system can gain access to said host system (17), and that said sequence of navigation tags (1) is transferred to the mobile navigation unit (6) via the air interface of the mobile radio system.
33. System for navigating in a navigation area, wherein a plurality of navigation tags (1) has been mounted at predetermined positions within said navigation area (2), said system comprising:
- means for determining a sequence of navigation tags (11, 22), which are associated with a desired route within the navigation area (2), based on said positions (18) of the navigation tags (1) and on topographic information (19) on the navigation area (2); and
 - means for manually acknowledging (12) the passing of a navigation tag (1), when said route is navigated by passing navigation tags (1) of said sequence of navigation tags (1).
34. A computer program product directly loadable into the internal memory of a digital computer, comprising software code portions for performing the steps of any of the claims 1-19 when said product is run on a computer.